



IRAQI
Academic Scientific Journals



العراقية
المجلات الأكاديمية العلمية

TJAS

Tikrit Journal for
Agricultural
Sciences

ISSN:1813-1646

Tikrit Journal for Agricultural Sciences

Journal Homepage: <http://tujas.tu.edu.iq>

Akeel N. Almohammed;

Mohanaed A. Alsammarri*

Field Crops Dept., College of
Agriculture, University of Tikrit,
Tikrit, Iraq

KEY WORDS:

Amino acid and vitamins. Yield
plant, yield plant components.

ARTICLE HISTORY:

Received: 27/08/2017

Accepted: 18/03/2018

Available online: 01/04/2019

Effect of Different Concentration of Amino Acid and Vitamins in Properties Yield and Components Plant Basil *Ocimum basilicum* L.

ABSTRACT

This study was carried out at a private farm in city Samarra in Qalaa for the 2016 summer season. This experiment included on factors is basil. Different concentrations of amino acid and vitamins and their interaction Amino acid included different concentrations of amino acid aspartic acid and amino acid phenylalanine ethylene the vitamins also included different concentrations of ascorbic acid and vitamins thiamine. The experiment was conducted to determine the effect of spraying on different concentrations of amino acid and vitamins in the characteristics of vegetative growth, physiological characteristics, the ratio of the pilot oil, its physical properties and the active substance. The experiment was applied using full Random Sector Design (R.C.B.D) (Complete Black Design Randomized) within the simple trials of three replication. The effect of spraying amino acid and vitamins can have a significant effect on most of the studied traits as follows: The treatment (spartic acid 150ppm x ascorbic acid 50 mg.L) was given in most studied traits, giving the number of date flowers (69.5) and number of seeds in the broiler (195.47) and weight 1000 seeds (1.72) and the origin of the leaf (1122.3) and total seed yield (2764.33).

© 2019 TJAS. College of Agriculture, Tikrit University

INTRODUCTION:

Ocimum basilicum L. is one of the plants of the oral family Lamiaceae, which contains a large number of paper and aromatic plants widespread in the world (Paton 1992), which includes about 200 species and 300 species (Musawi 1987). Species and species scattered in Asia, Africa and the tropical regions are the original habitat (Lawrence 1992).

Basil seeds can be used in medical and biological treatment by eating their seeds, herbs and flowers. The basil leaves and flower tops are also used in a variety of gastric diseases and digestion, which is a milk dispenser and a stimulant of gases and antiperspirants (marotti et al. 1996).

Plants of medical importance currently occupy a significant position in agricultural production and have appeared. The recent trend towards expanding its cultivation and spread as strategic materials in the pharmaceutical industry. And then increase the need for large quantities in the industry and increased interest in medicinal plants in many parts of the world if the collection of medicinal plants in Bulgaria annually (about 8000 tons), which exports large quantities to the world markets for use in chemical industries, (Mohammad Ali and others, 2009).

At the end of the 20th century, the developed countries turned their attention to popular medicine against human diseases, from the treatment of plant species, either single or mixed (Abu Zeid, 2006). The total area of production of the basil plant or the cultivated area was estimated at 5000 ha, of which 2200 ha was allocated for the production of dry herbs, of which 1700 ha was allocated for the production of volatile oils, while the global production of oils ranges between 93-95 tons per year.

* Corresponding author E-mail: mohanaed.barca@gmail.com

(Lawrence 1992). (SS Henendawy and others .2010) showed an increase in the properties of the ingredients and their constituents in the *foeniculum vulgare.L* when sprayed with different concentrations of amino acids and vitamins (Al-Jaber, 2008). The seeds of the ring in the ascorbic amino acid at a concentration of 150 mg / l - The weight of corneas - 1, corneal weight, number of seeds - cornea - 1, total seed yield - 1, hk yield, percentage of nitrogen, phosphorus, moisture and protein in seeds compared to non - treated plants increased. Swarajgamg (1970) found that when chickpeas was treated with ascorbic acid at a concentration of 20 or 100 mg-L-1 by adding to the roots, it accelerated the formation of corneas and increased weight and weight of seeds compared to untreated plants.

Due to the nutritional and medicinal significance of basil plant and the scarcity of research on the effect of amino acids and vitamins, this study was conducted in order to determine the effect of different concentrations of amino acids and vitamins in the properties of the ingredients and their components of basil.

MATERIALS AND METHODS:

The soil of the experiment at Samarra site was plowed by two planks in the perpendicular plow. It was swathed after smoothing. The ground was divided into experimental units with an area of 4 m² for each experimental unit and dimensions of 2x2 m². Separating the repeaters with 1 m intervals and 50 cm intervals between the units. All the units studied sampled superphosphate fertilizer (P₂O₅) before planting by 60 kg e⁻¹ (Farhan, 2011). The experiment with Nitrogen Fertilizer (46% Nitrogen) was determined on the first two steps (before planting) and the second after 45 days of cultivation and 150 kg N N-1 Samurai, 2014). The seeds were planted on 20/3/2016, and the agriculture was in the form of 4 lines per unit and the distance between the line and another 50 cm and the distance between plants (35 cm), the number of plants in the experimental unit (20) plants per experimental unit distributed randomly at each Repeated by design of the full randomized segments RCBD in three replicates

1 - The number of date flowers. Plants⁻¹: Calculate the rate of number of flowering date / plant was calculated an average of (10) random plants per experimental unit.

2 - Number of seeds in syphilis (gm.plant): The rate of seed is calculated in syphilis. The average of (10) random plants were calculated for each experimental unit.

3 - weight of 1000 seeds (g): The weight of 1000 seed weight is calculated by a sensitive balance of three mattresses after the vow was calculated an average of (10) random plants per experimental unit.

4 - the holder of the leafes kg. Ha⁻¹: Average dry weight per plant (kg) / plant area 1000x m.

5 - Total seed yield kg hectare⁻¹: Calculated after harvest by calculating the total yield of the unit.

Statistical analysis: After statistical data collection and classification, statistical analysis was statistically analyzed by using the design of the complete random segments (R.C.B.D) and then tested according to the least significant difference (L.S.D) at 0.5% probability level (Narrator and Behind God 2000).

RESULTS AND DISCUSSION:

The significant differences between different concentrations of amino acids and vitamins were observed in the number of number of daets (T₆) (150mg\L⁻¹ x amino acid, 50 Mg.L-1), giving the highest value of 69.51) Compared to the comparison treatment with the lowest value of 24.03 (1). Figure 4A showed significant differences between concentrations of amino acids and vitamins and their effect on the weight of 1000 seeds. The treatment (T₁) and (T₂) The highest concentration (1.95 g) was compared to the lowest treatment (1.82 g), whereas the treatment (T₂) was the concentration (amino acid) Aspartic 75ppm x Ascorbic Vitamin 50Mg.L-1) where the highest value was (1.92 g) compared to the comparison treatment where the minimum value (1.82 g). However, there are no significant differences between the treatment T₄ and T₇ and T₈.

It is noted from Figure (2) that there are significant differences between the different concentrations of amino acids and vitamins in the number of seeds in the ember where the treatment (T₆) (amino acid Aspartk 150ppm x ascorbic vitamin 50Mg.L - 1) highest value of (195.47 g) With

the treatment of the comparison where the lowest value was (74.27 g) while there were significant differences between concentrations of amino acids and vitamins and their effect in the content of the leaves, where the treatment was superior (T6) (the amino acid Aspartic 150ppm x ascorbic vitamin 50 Mg.L-1) (1122.37 kg / ha -1) compared with the comparison treatment that gave the lowest value b (862.97 kg. Ha-1). The above figure shows significant differences between concentrations of amino acids and vitamins and their effect on total seed yield. The treatment (T6) (the amino acid aspartic acid 150ppm x ascorbic 50Mg.L-1) (2764.66 kg / ha -1) compared to the comparison treatment where it gave the lowest value (987.66 kg-1 hectare).

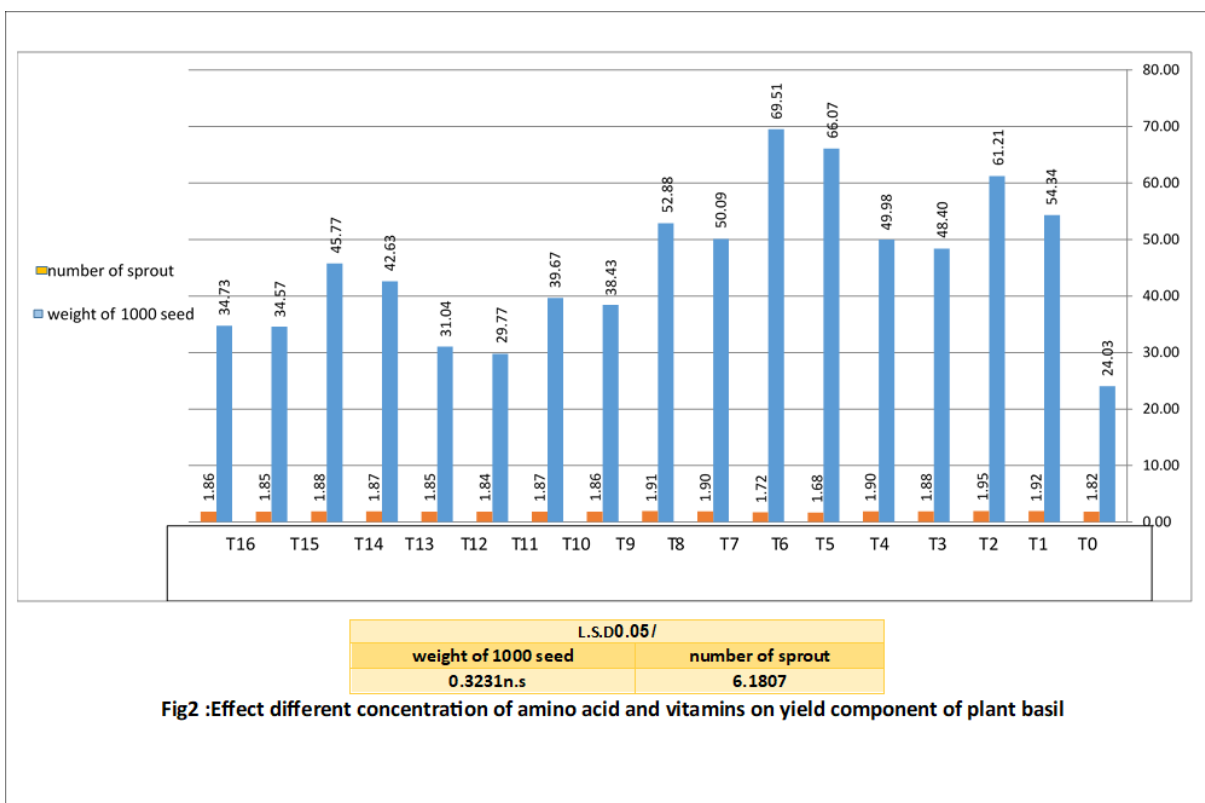
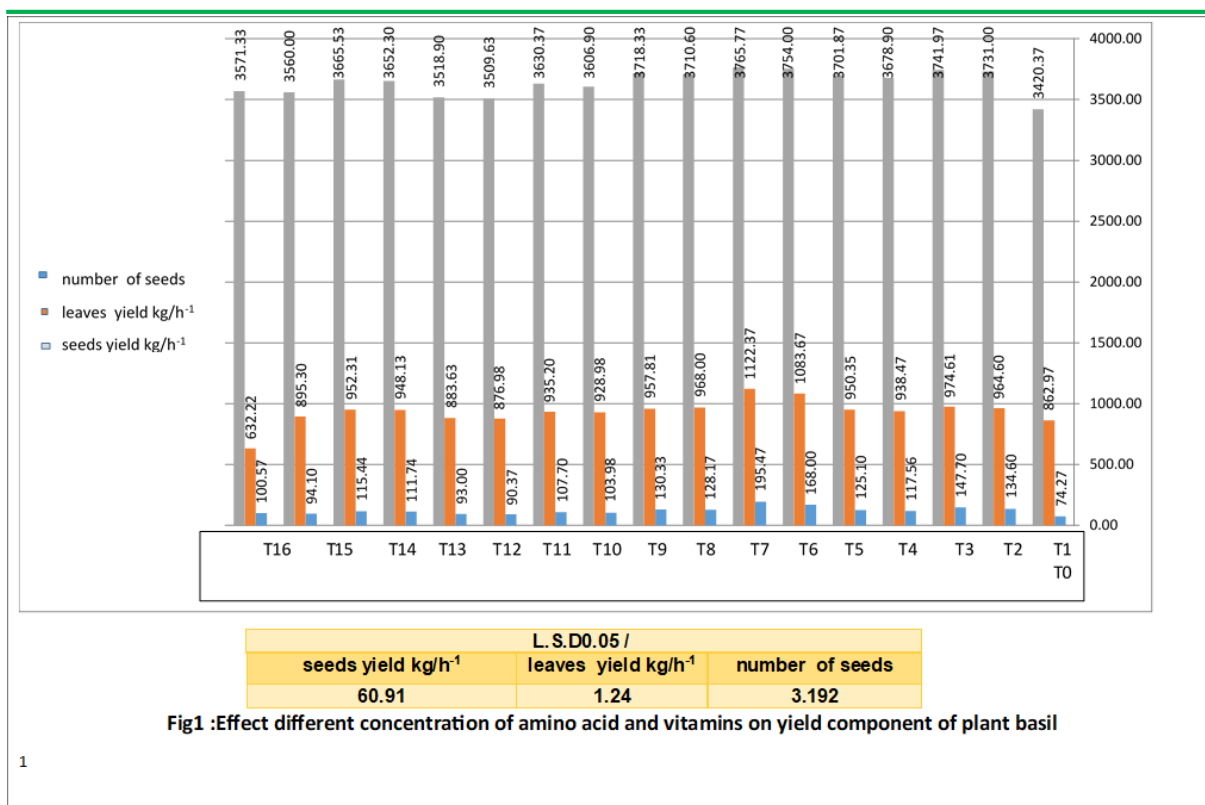
Al-Jaber (2008) noted that the seed of the ring in ascorbic acid was 150 mg-L -1, which increased the corneas -1, corneal weight, number of seeds -gera -1, total seed yield -1, dunum yield, percent nitrogen, phosphorus, moisture and protein In seeds compared to non-treated plants.

The cause of the increase in the components and components of the increase in the concentration of amino acids and vitamins that these acids and vitamins when sprayed of the plant led to an increase in the characteristics of vegetative growth and physiological qualities and nutrients (Fig. 1, 2a and 2b and 3) and amino acids and vitamins are important in increasing the activity of biological processes In the plant, especially the process of photosynthesis, which is responsible for the manufacture and transfer of food from the places of classification to the places of storage of seeds that these results are in line with the arrival of al-Qaisi and others.

Hendawy et al., (2010) showed an increase in the properties of the yield and its components in *Foeniculum vulgare.L* when sprayed with different concentrations of amino acids and vitamins. Amino acid spraying has a role in stimulating phylogenetic and biochemical processes by sharing proteins and the carbohydrate industry by building chlorophyll, improving the properties of the logical components, and encouraging many enzymatic processes and attachments (Shafeek et al., 2012). 2005).

Yaussef & Talaat (2003) showed that the plants treated with different concentrations of vitamin B1 40,80 mg / L-1 were significantly higher in flower petals compared to plants that were not treated and without significant differences between them. This may be attributed to the role of vitamin B1 in increasing the efficiency of the process Photosynthesis and absorption of elements from the medium and increased internal hormones, especially cytokines and gibberellins.

One study showed that the addition of amino acids had a role in increasing the leaf content of the plant and increasing the yield per unit area and increase the rate of photosynthesis as well as the paper area (Derwich et al., 2009).



REFERENCES:

- Abu Zaid, Al-Shahat Nasr (2006).** Volatile oils. Department of Agriculture and Production of Medicinal and Aromatic Plants Pharmaceutical Research and Pharmaceutical Division National Research Center in Cairo. Arab House for Publishing and Distribution - Egypt.
- Al-Jaber, Haidar Subeeh Chino (2008).** Trigonella foenum graecum.L res **Al-Jaber, Haidar Subeeh Chino (2008).** Trigonella foenum graecum.L res to the date of planting and soaking seeds and their effect on growth, seed yield and some active ingredients. Master Thesis, Faculty of Agriculture, University of Basra / Iraq.
- ALsaid , M. A and A. M Kamal (2008).** Effect of foliar spray with folic acid and some amino acids on flowering yield and quality of sweet pepper .J. Agric .sci. Mansoura Univ . 33(10) 7403_7412.
- Arabian cinf. For Hort , Is mailia Egypt .15-Shafeek .M.R. Y.I . Helmy . M.A.F shalaby and N.M omer (2012).** Response of amino plants to foliar application of sources and levels of some amino acid under sandy soil condition . J . of APPl . Sci . Res . 8(11) ; 5521- 5527
- Azza,A .E.Dine & S. A. Hendawy. (2010).**(Growth and yield of influenced By some Vitamins and Amino acid) Ozean _journal . of APPLied science :3 (1).
- Azza,A .E.Dine & S. A. Hendawy. (2010).**(Growth and yield of influenced By some Vitamins and Amino acid) Ozean _journal . of APPLied science :3 (1).
- Derwich, E.; Z. Benziane; A. Boukir & L. Benaabidate (2009).** "GC-MS Analysis of the leaf Essential oil of Mentha rotundifolia, traditional herbal Medicine in Morocco". Chem. Bull. "politehnica", 54(68): 85-88
- EL-Shabasi ,M.S. S.M. Mohamed and S. A Mahfouz (2005).** Effect of foliar spray with some amino acid on groth yield and chemical composition of grailc plants the 6the
- Lawrens,B.M(1992).** Chemical componets of labiatae oil and their xeploataion In.R.M . Harly and T.reinold advances in labiatae science, Royal biotanical Gardens , kew, uk :pag (399_436).
- Marotti,M: piccaglia , R giov anell, E.(1996).** Differences in essential oil composition of (Ocimum basilicum.L). Italian cultivars related to morphological characteristics . j. Agric. Food chem. 44 pag (392_292).
- Mohammed Ali, Mahmoud Saleh and Younis Mohammed. (2009).** "Effect of medicinal plant farming Wild on their chemical and biological properties. "Final Report, King Faisal University, Ministry of Agriculture Higher Education.
- Moussawi, Ali Hussein Ali (1987).** Plant Classification Science. University of Baghdad Ministry of Higher Education and Scientific Research, p. 339.
- Paton.A.(1992).** Asynopsis of (Ocimum basilicum.L) (Labiatae) inafrika . kew Bull . 47 pag (405_437).
- Qaisi, and Amjad Amjad and Hilal, Hajar Mohammed (2013).** Effect of ring plant extract and vitamin C on the growth and yield of the leaves plant (*Vicia faba*.L). Diyala Journal of Agricultural Sciences, No. 5 (1), pp. 105-1117.
- Shafeek .M.R. Y.I . Helmy . M.A.F shalaby and N.M omer .(2012).** Response of amino plants foliar application of sources and levels of some amino acid under sandy soil
- the narrator Khasha Mahmoud and Abdul Aziz Mohammed Khalaf Allah (1980).** Design Analysis of Agricultural Experiments. Dar Al-Kuttab Printing Press. University of Al Mosul. Iraq.
- Youssef,A.A and I .M.Talaat(2003).** Physiological response of rosmary plant to some vitamins. EGYPT plant . pag 81_93..

تأثير تراكيز من الاحماض الامينية والفيتامينات في بعض صفات الحاصل ومكوناته لنبات الريحان *Ocimum basilicum* L.

عقيل نجم عبود المحمدي ومهند عبد الستار كامل السامرائي

قسم المحاصيل الحقلية - كلية الزراعة - جامعة تكريت

المستخلص

نفذت هذه الدراسة في احدى المزارع الخاصة في مدينة سامراء بمنطقة القلعة للموسم الصيفي 2016 تضمنت التجربة عامل واحد تراكيز مختلفة من الاحماض الامينية والفيتامينات والتداخل بينهما حيث ان الاحماض الامينية تضمنت تراكيز مختلفة من الحامض الاميني الاسبارتك والحامض الاميني الفنيل الانيين ، وكذلك الفيتامينات تضمنت تراكيز مختلفة من فيتامين الاسكوربيك وفيتامين الثيامين بهدف: معرفة اثر الرش بتراكيز مختلفة من الاحماض الامينية والفيتامينات في صفات الحاصل ومكوناته لنبات الريحان، طبقت التجربة باستخدام تصميم القطاعات الكاملة المعشاة (R.C.B.D) (Randomized Complete Block Design) ضمن التجارب البسيطة بثلاث مكررات أثر رش الاحماض الامينية والفيتامينات تأثيراً معنوياً في اغلب الصفات المدروسة على النحو التالي: حيث اعطت المعاملة (الحامض الاميني الاسبارتك 150 ملغم لتر⁻¹ x فيتامين الاسكوربيك 50Mg.L⁻¹) اعلى قيمة تفوقت في اغلب صفات الحاصل ومكوناته المدروسة وعدد الشماريخ الزهرية (69.5 شمراخ نبات⁻¹) وعدد البذور في الشمراخ (195.47.بذره شمراخ⁻¹) ووزن 1000 بذرة (1.72.غم) وحاصل الاوراق (1122.3 كغم.هكتار⁻¹) وحاصل البذور الكلي (2764.33 كغم.هكتار⁻¹).

الكلمات المفتاحية: الاحماض الامينية والفيتامينات، صفات الحاصل، صفات الحاصل ومكوناته.